

MEDICINE LAKE NATIONAL WILDLIFE REFUGE
WATER MANAGEMENT PLAN FOR
1945

January 11, 1945

The following tabulation indicates recommended water levels for the beginning of the 1945 season, the present elevations of the various units and the levels of the spillways on those units that are equipped with spillway structures:

UNIT AREA	SPILL LEVEL	PRESENT ELEVATION	MAXIMUM 1945 LEVELS
No. 12	1956.00	1952.90	1954.00
Katy's Lake	No spillway	1952.60	1956.00
No. 11	1952.54	1951.40	1952.54
No. 10	1945.50	1944.20	1945.50
No. 4 (Medicine Lake)	1943.00	1941.54	1943.00
No. 6 (Homestead)	1938.00	1936.14	1938.00

The water levels which have been recommended for the various units of the Medicine Lake Refuge will be attained if a sufficient volume of spring runoff water is secured from Muddy Creek, Lake Creek and the smaller local coulees. The following is a brief discussion on the plan of handling the water levels for each of the units:

NO. 12 AREA

As a result of the rather meager runoff of last spring the No. 12 area was not filled to capacity. It reached the 1953.60 contour and when the lake froze up this fall the gauge reading was 1952.90. It would be desirable to have this level in the spring at the 1954 contour if this can be reached or about 2 feet below spillway level. It has been found that by holding No. 12 up to the spillway crest that a considerable amount of shoreline vegetation is covered and this might be conducive to an outbreak of botulism. The 1954 level appears to be best suited to the general shore conditions on No. 12 and the ideal set up seems to be to attain this height in the spring and then let it drop very slowly from the natural evaporation and seepage during the early summer months. This will provide a narrow margin of clean shore line and has worked out very well in connection with the control of botulism.

KATY'S LAKE

At the present time the Katy's Lake area stands at the 1952.60 contour. Last spring the high water line on the area was 1953.56 and it receded approximately one foot during the summer. I note that the 1944 Water Management Plan called for filling of Katy's Lake to the 1957 contour but this could not be accomplished because of the lack of water. We had some outbreak of botulism on Katy's Lake this summer and lost about 500 ducks but there is some question in my mind as to whether this condition would be improved or aggravated if the lake were filled to a higher level. I find

from Mr. Hazeltine report of botulism in 1943 that the disease was of about the same severity as during the past summer. Therefore, it is rather difficult to determine what the most desirable level will be for this area. Water cannot be drained from Katy's Lake without first draining the No. 12 area an equal amount and neither can any appreciable amount of water be put into the lake unless No. 12 should fill to the spillway level in the spring. If fresh water is available in the spring, it probably will be advisable to fill Katy's Lake up to the 1953 contour.

NO. 11 AREA

The No. 11 impoundment now stands at 1951.40 or about 1 foot below spillway level. It is recommended that we fill No. 11 to the top of the spillway in the spring if this can be done and then provide for a slowly receding shore line prior to and during the botulism outbreak. This method has proven satisfactory in the past both on this and other areas affected with botulism. In case of a serious outbreak of botulism in No. 11 I believe that it would be advisable to effect a further drop in the water levels than have been recommended, but this should be done only in the event that botulism should get out of control.

NO. 10 AREA

We now lack 1.30 feet of water in this area from the top of the spillway crest. It is recommended that this area also be filled to the top of the spillway with water from the spring runoff which we hope will be available. A gradual decline in this level should then be provided to effect a drop of about 1 foot at the time of our usual botulism outbreak.

NO. 4 AREA (MEDICINE LAKE)

We now have a gauge reading of 1941.54 on the main Medicine Lake unit as compared with a spillway elevation of 1943. It will be desirable to fill this lake to capacity in the spring if water is available from Muddy Creek and this level should be held as high as possible all summer to provide a maximum amount of shoreline vegetation and as a storage against possible future needs in the Homestead area.

NO. 6 AREA (HOMESTEAD)

The Homestead impoundment now stands at the 1936.14 contour, or 1.84 feet below spillway level. It is proposed to fill this unit to capacity in the spring from runoff water coming down Muddy Creek and if water is not available from this source we should take enough water from the Medicine Lake unit to bring Homestead up to the desired level. The normal amount of seepage and evaporation would then probably lower this lake about 1 foot by July 15 although if this is not accomplished in this way, water should be let out into Muddy Creek in order to bring about the desired levels. This procedure has proven very satisfactory in the past 2 years in the control of botulism and we can see no reason at this time to deviate from it.

Respectfully submitted.

V. E.
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